

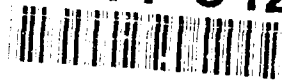
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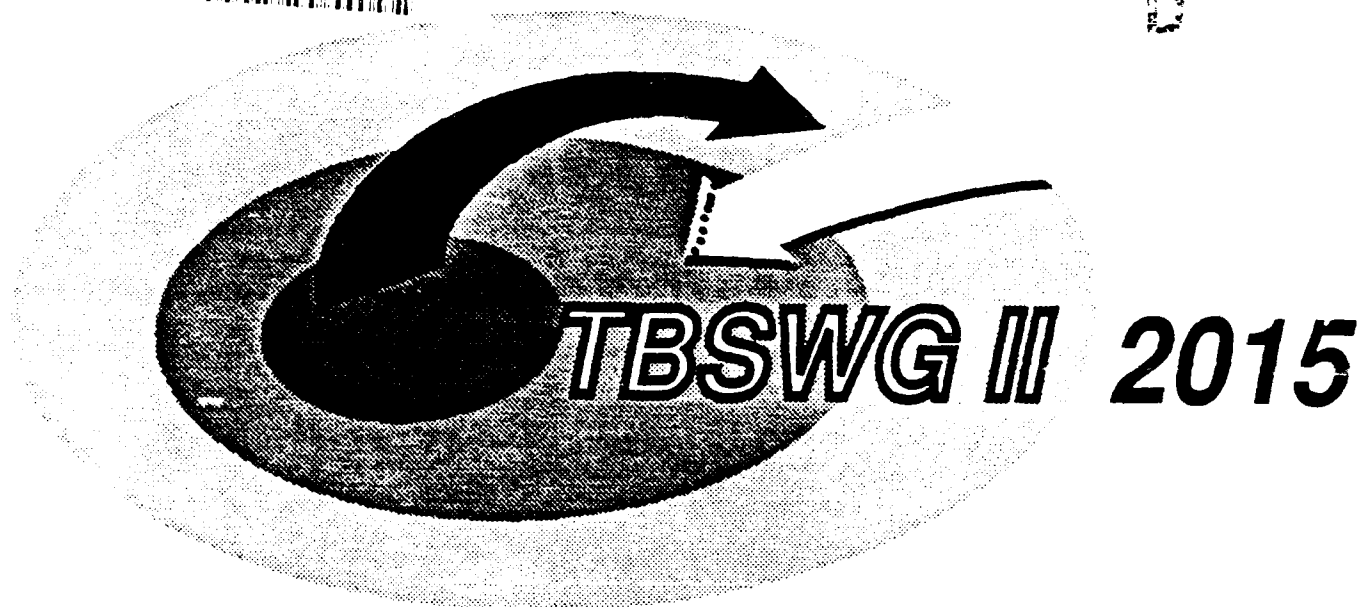
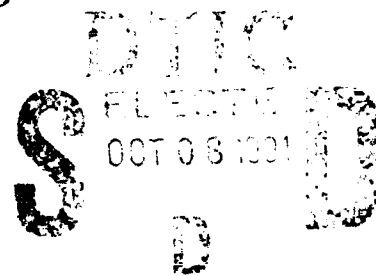
Report on the
TECHNOLOGY BASE SEMINAR WARGAME II
(TBSWG II)

Volume 5: TBSWG Briefings
(Appendices L-Q)

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• 20 November 1990 • • • •



Booz•Allen & Hamilton Inc.
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23-26 April 1990

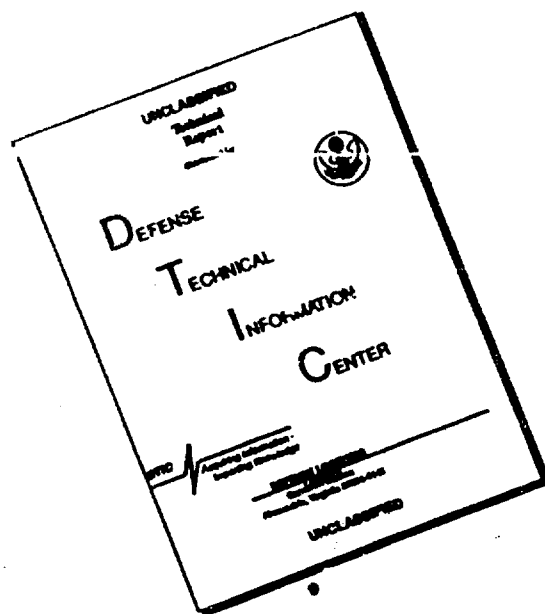
The Combined Arms Center
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Ft. Leavenworth, Kansas
6-8 June 1990

US Army Materiel Command
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Volume 5: TBSWG II Briefings
(Appendices L – Q)

20 November 1990

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APPENDIX L: AIRLAND BATTLE FUTURE

The following paper was written in February 1990 and was mailed to participants in TBSWG II prior to the Phase 2 game.

AIRLAND BATTLE FUTURE An Evolving System

The Army must respond to trends that *cause* change and must harness new capabilities that *enable* change. This response requires revision of warfighting concepts when appropriate. AirLand Battle has served the Army for the past decade and its tenets will carry the Army into the 21st century. However, as we examine current and projected trends, certain conclusions are reached that appear to be worthy for development of a new concept for future warfare. This paper describes that evolving concept.

Dealing with Change

We are in a period of great change—coming from many directions and of many dimensions. The critical challenge for the Army is how to deal with this change.

TRADOC has to look into the future, assess these changes, develop a warfighting concept, and then determine wartime needs and structure. We can then work our way back to the present.

Trends

As we look to the future, analysis of the trends helps us to make our way into the future without getting bogged down in day-to-day reaction to change.

Causes of Change

Our National Military Strategy consists of: deterrence through strength; forward defense; flexible response; coalition warfare; and regional contingencies. This strategy has been consistent for many years and will very probably remain consistent into the next decade, *but* we expect a shift of emphasis and importance to a greater or lesser extent in components of the strategy. For example, Forward Defense will remain a tenet, but certainly the number of forward deployed forces will be greatly reduced.

The probability of global war/major conventional war is low, but the probability of regional conflict is high. Some mid-intensity conflict could occur, but conflict will most likely occur in low-intensity environments. The spread of challenges in low-intensity conflict is broadening and taking on more dimensions.

The number of forces world-wide is generally on a downward trend. Demographics show that there are less military-age personnel available in the US and in Western Europe. The size of forces in some nations is also being reduced because of the cost of maintaining modern armies. Arms control negotiations appear headed for early success which will eliminate the great asymmetries that exist in conventional arms between the Alliances. These factors will result in a much lower density of forces on the battlefield.

Harnessing New Capabilities

Technological advances will enable conceptual change. Improvements in technology will provide much greater fidelity of intelligence and target acquisition sensors. Weapons systems will be more lethal and accurate at much greater ranges. Concurrently, the complexity and cost of systems will rise. Increased cost will result in fewer numbers of systems entering inventories.

Conclusions of Trends in the Mid-90's

There are three principal conclusions which can be drawn from these trends.

Non-Linear Warfare. First, clearly we are headed into another era of non-linear warfare. Arms control agreements, lower demographics, and the rising costs of modern armies will reduce the density of forces on the battlefield. Even on the densest battlefield, concentration of forces necessary to reach an operational objective would leave great gaps between forces and create a non-linear battlefield.

Knowing Where the Enemy Is. Second, we are entering an era where we can know where the enemy is and where he is going almost all of the time based upon improvements in intelligence sensor and processing technology. This is a *near revolutionary* conclusion.

Long Range Lethality. Third, we are at a point where improvements in weapons system technology, coupled with improvements in target acquisition capabilities, will give us the capacity to engage enemy forces at long range (in excess of 100km), with very accurate and very lethal weapons.

Evolving Ideas

These conclusions are of sufficient change to require us to think about fighting in a different manner, because we will be able to do things that we cannot do now. These include:

- Using sensors rather than forces to locate, track, and acquire the enemy.
- Attacking enemy forces at long range with air or surface assets. At times, the enemy also may be engaged with maneuver units, in combination with

whatever fires are required to defeat him. Long range engagement capabilities will extend the battle area to 100km or more.

- Since fewer forces will be available, they should not be positioned along a FEBA where they can be targeted and fixed. Available forces must be dispersed back from such a line and then, when required, quickly mass and move forward, based upon accurate intelligence information, to the desired battle area in sufficient strength. We can avoid a grinding attrition battle by grabbing the initiative and forcing the pace of action through long range fires or with maneuver and supporting fires. The forces to be engaged and employed will be quickly task organized for the battle at hand.

These ideas indicate we can have forces that can: be dispersed; mass and move quickly; fight short, intense, highly synchronized battles; redisperse; and reconstitute.

Force Implications

We have considered some changes which are necessary in order to implement these ideas. This work is still evolving and no conclusive answers are available, but these are some of the points that are being addressed:

- We must make our maneuver forces more agile. We must *design* agility into the maneuver force. Those forces must be able to move rapidly to build up combat power quickly.
- A strong, simple concept of command must be developed to enable rapid decisionmaking and issuance of orders. Maneuver commanders must have the freedom of action to sue their initiative on the non-linear battlefield. yet, when required, we must be able to closely synchronize a battle. A reliable, mobile communications system must support the command and control system.
- The requirement to rapidly tailor forces for diverse missions across the operational continuum demands that there be enough of the right mix of maneuver, combat support, and combat service support forces for the battle. We are looking at ways to improve our ability to tailor these forces.

Investing in the Future

The Army must invest in the right technology in order to have the systems necessary for ALBF. Investment should concentrate on the right mix of reliable, accurate intelligence and target acquisition systems and reconnaissance capabilities; command and control systems; highly lethal long range fire capabilities; and agile, lethal close combat maneuver systems.

Revising Organizations

There appear to be changes necessary to revise organizations to implement the ALBF concept. The Corps will continue to be the centerpiece of the Army structure and will integrate Combat, Combat Support, and Combat Service Support. The Corps will find the enemy at long ranges through aggressive use of a tiered surveillance and reconnaissance systems (national, theater, Corps, division level) and respond by engaging with long range fires. The Corps will task organize fire support and air assets to the division and its maneuver element for the maneuver fight. Some of the combat support and combat service support currently placed in the division should be moved to the Corps to provide the Corps greater flexibility in responding to the enemy.

The division should focus on control and synchronization, and will be "unweighted" for logistics to enable such a focus. "Unweighting" is the means for transferring most logistics and combat service support functions and overhead back to Corps or forward to brigade so that the division will have the physical agility needed to move as well as control and synchronize the battle. A reconnaissance capability is necessary to link the sensor information about the enemy to verify the positioning of the friendly maneuver force.

The combined arms brigade will be the maneuver element. The brigade will focus on fighting. We are examining many different ideas on the composition of a combined arms brigade, and the command relationships necessary to allow the brigade to move rapidly and be effective.

In simplifying logistics, we are concentrating logistics capabilities at the Corps Support Command and the Forward Support Battalion to better support the battle. The Division Support Command will synchronize logistics support between the COSCOM and the forward brigade. Automation and communications technology must be used to replace redundancy. The COSCOM will task organize to support the Corps base and committed divisions.

Summary

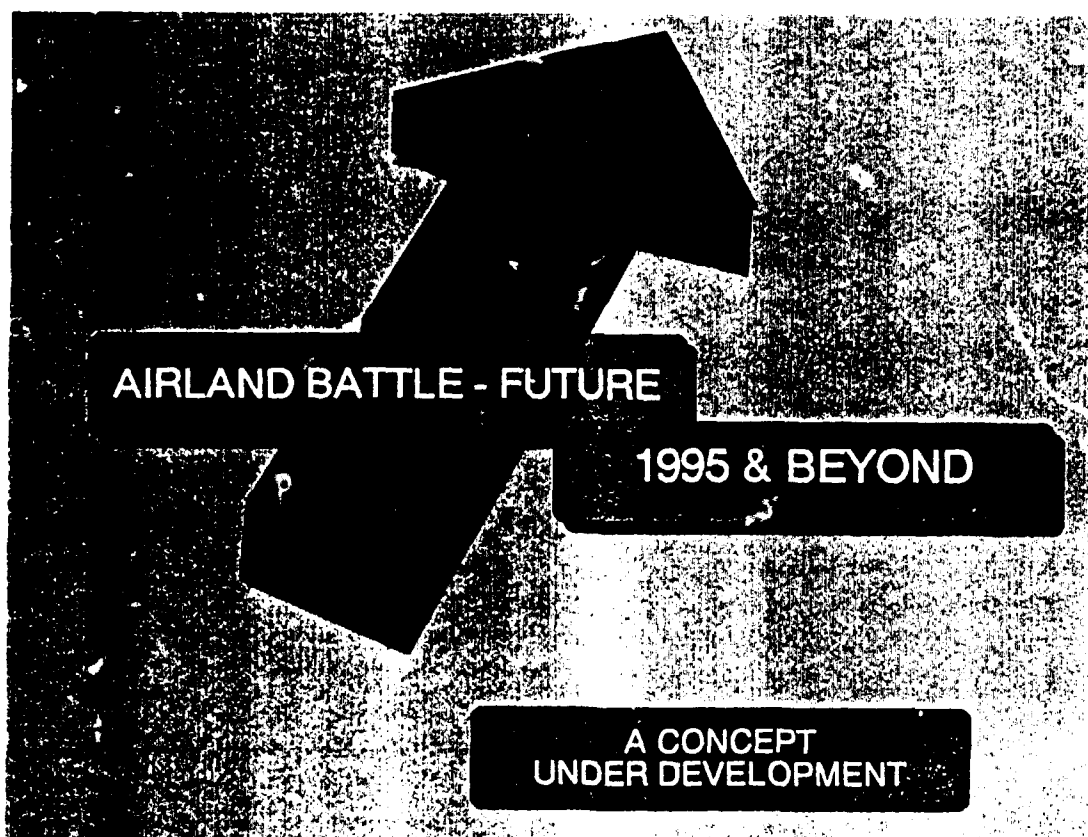
ALBF work is *conceptual*. It applies to High, Mid, and Low Intensity battlefields. Early efforts are promising, but we need more analysis and assessment. We know we must have a future Armor which is lethal and agile, but we must also have a balance and be better at task organization. We must have a better reconnaissance capability to link intelligence sensors and maneuver units. We need to find a better yet less costly way to do our logistical support.

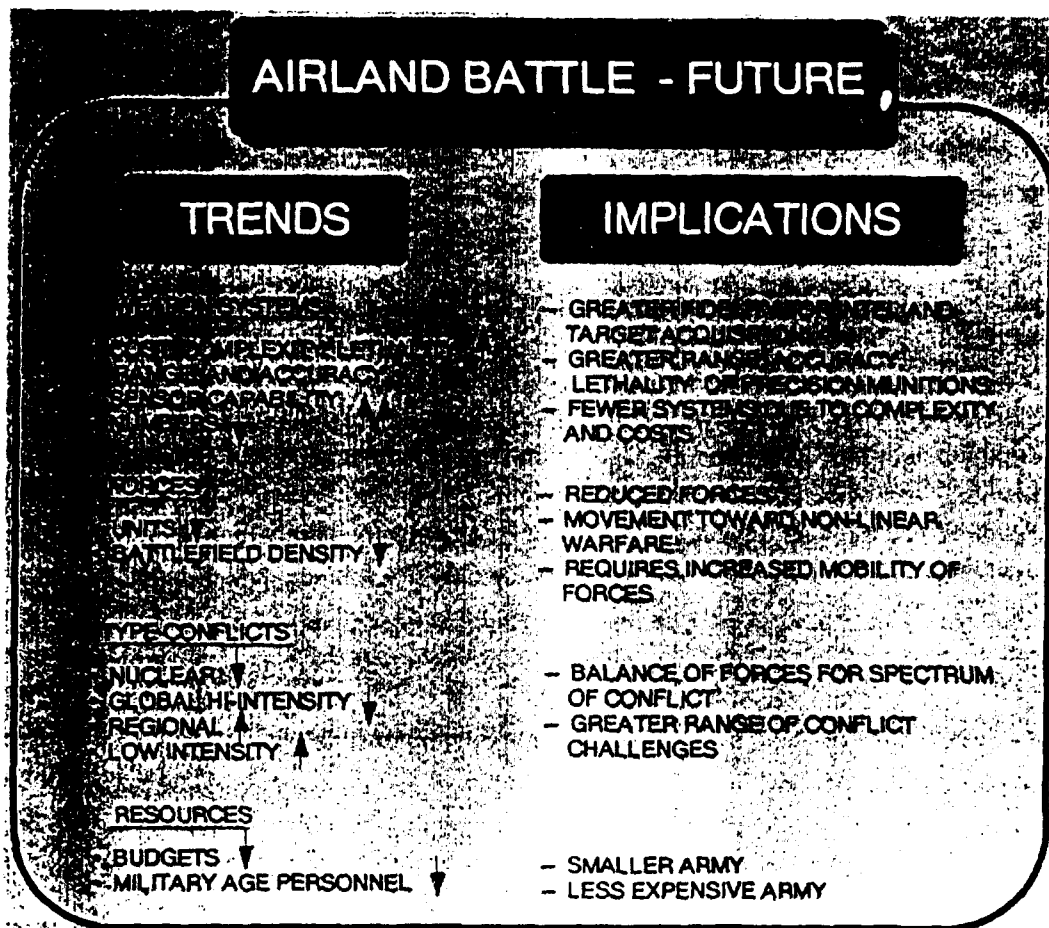
The concept is flexible and appears to fit across the operational continuum, but we have not yet wrung out all of the implications. We are thinking differently about how we might fight, but our concept work is not exclusive of other notions. For example, non-linearity does not exclude linearity. We believe that a Corps organized for the challenges and opportunities of non-linear warfare will be able to fight a non-linear battle and, if required, a linear battle, whereas a Corps organized for linear

warfare, such as the current ones are, will have much more difficulty fighting a non-linear battle.

We are certain that the design requirements of a future Army (1995 and beyond) must start now so that we will have a view and guiding light of our future requirements. During this period of change, we can then shape the units of the Army to meet our future force, as well as providing a focus to our new equipment needs. The greatest mistake we could make is take our Army from the 70's and 80's into the 21st century.

AirLand Battle Future Briefing Slides





EVOLUTION TO THE FUTURE

AIRLAND BATTLE - PRESENT

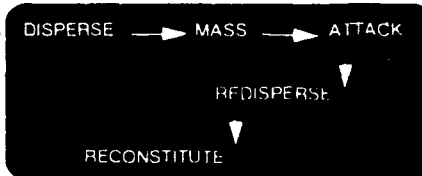
- GAIN/MINIMIZE SURVIVANCE
- FIGHT OVER, GROUND, REAR
- FOUR TENETS
 - SYNCHRONIZATION
 - DEPTH
 - AGILITY
 - SEPARATION
- BASICALLY LINEAR -- CONTROL FLOW OF SCHEDULES INTO CLOSE FIGHT
- ABILITY IS KEY, RATHER THAN A FORCE CHARACTERISTIC

INFLUENCE OF TRENDS

- FMO, PK, FIGHT TAKES ON DIFFERENT DIMENSION
 - SENSOR CAPABILITIES
 - IMPROVED WEAPONS
- TECHNOLOGY IMPROVED -- EARLIER IDENTIFICATION, TRACKING AND TARGETING
- GREATER EMPHASIS ON EACH TENET
- NONLINEAR BATTLEFIELD
 - MORE DANGEROUS AT OPERATIONAL LEVEL
 - MORE DIFFICULT AT TACTICAL LEVEL
- LIC IS NONLINEAR
- AVOID GRINDING ATTRITION BATTLE (LESS FORCES)

AIRLAND BATTLE - FUTURE

- GRAB INITIATIVE, FORCE THE FIGHT
- USE SENSORS RATHER THAN FORCES TO LOCATE, TRACK, ACQUIRE ENEMY
- ATTACK ENEMY FORMATIONS BY PING AND FAST MOVING COMBINED ARMS FORMATIONS
- LINK BETWEEN SENSORS AND ATTACK FORCE IS FAST RECON FORCES



IMPLIES:

- RAPID DECISIONS
- STRONG COMMAND SYSTEM
- RELIABLE CONTROL & COMMO SYSTEM
- TACTICAL OFFENSIVE
 - OPERATIONAL OFFENSIVE / DEFENSIVE
 - STRATEGIC DEFENSE
- AVOIDS GRINDING, ATTRITION BATTLE

AIRLAND BATTLE - FUTURE

KEY ASSUMPTIONS:

AIRLAND BATTLE - FUTURE

TO EXECUTE THE CONCEPT REQUIRES:

LONG RANGE DETECTION TRACKING & SURVEILLANCE CAPABILITY
PRECISION SENSORS

MINIMIZE PERSONNEL IN HARM'S WAY

AGILITY TO CONFIRM WHERE THE ENEMY IS AND WHERE HE IS NOT
BEING CERTAIN OF WHERE HE IS NOT MAY BE MORE IMPORTANT
GROUND AND AIRBORNE SURVEILLANCE CAPABILITY

ABILITY TO ACCURATELY TARGET ENEMY AT LONG RANGE

ABILITY TO USE FIRES IN LIEU OF MANEUVER TO
ATTACK ENEMY

UNDERSTAND THE ENEMY PLAN; DECOUPLE HIS FORCES
SHAPE THE BATTLE

RAPIDLY TAILORABLE AGILE MANEUVER FORCES

EXTENSIBLE AGILE LOGISTICS

STRONG COMMAND AND CONTROL

DEPENDABLE COMMUNICATIONS

SUPERB LEADERSHIP AT ALL LEVELS

AIRLAND BATTLE - FUTURE

CHANGES IN THE ARMY:

REEMPHASIS ON CONTINGENCIES
 MOVE FROM FORWARD DEPLOYED FOCUS TO WAR/CRISIS
 REARRANGE CONTINGENCY/ FORWARD DEPLOYED FORCE
 MOVE TO MORE DEPLOYABLE FORCES
 MAINTAINABLE SELF-SUSTAINING UNITS TO MEET
 OPERATIONAL CONTINGENCIES
 REFINED THE ARMY'S ROLES AND MISSION BEYOND WAR/CRISIS
 OPERATIONS IN CONFLICT
 NATION DEVELOPMENT
 SUPPORT OF CIVIL AGENCIES
 LEVERAGE TECHNOLOGY EFFECTIVELY TO ENHANCE THE FORCE
 IMPROVE C2
 INCREASE SOLDIER EFFECTIVENESS IN COMBAT
 IMPROVE SURVIVABILITY
 INTER/TGT ACQ/TRACKING/EXTENDED RANGE ENGAGEMENT
 SMART MUNITIONS
 INCREASED MISSIONS AND APPLICATION OF CS/CSS UNITS
 MEDICAL CA PSYOPS ENGR MP TRANS SF ETC

APPENDIX M: TAILORABLE CORPS

TRANSCRIPT OF BRIEFING PRESENTED BY MR. ROBERT KELLER OF THE FORCE DESIGN BUREAU

Mr. Keller: The mission of the Force Design Bureau is to make the system, which has been developed by the people represented in this room, and put on it an operationally effective organization and, more equally, lately a resource efficient organization. It seems that we don't always get what we want.

Periodically, besides doing those routine actions that do that, we step back and try to figure out where we're going to go long term. The current project we've got going, in that regard, is titled AirLand Battle Future, in which we're looking at the period 1995 to about 2005 and trying to figure out what are the impacts of the changes in the geo-politics, particularly those that have occurred in the last few months; and also, how do we optimize the technologies that will become available during that period of time.

We are in the concept exploration phase. It ain't soup yet, so the force designs I'm going to show you are things that we're using to investigate the concept. And we don't expect that we will have the concept work even near completion until later on this year. Those are our objectives.

It is necessary that we put this caveat up for particularly our own people, because it's much more fun to get down and start drawing rectangles and trying to decide how many tanks go in a platoon and those kinds of very fun things to do, that you're trying to save at a kind of esoteric level and trying to figure out what it is you're trying to do with things. Or if you even need a tank, because maybe we ought to convince ourselves that we really do need it, given the concepts of where we want to go in the future.

This chart (8) summarizes where we are today on the left side with AirLand Battle Future, that's our current doctrine, and the things that are driving us to consider changes, in the center column, and where we think we're going, on the right side. Let me just point out a couple of major items. The force densities that we see worldwide are forcing us onto a battlefield that is not linear. That's a given, not something we attempt to achieve. We just won't have the forces that are going to allow us to operate off the hub as we have traditionally done in the past, or in the layer-cake philosophy that is called Europe. We are going to have force densities that are going to have a lot of room to maneuver.

So a lot of the work that we're doing out here in AirLand Battle Future is being driven by that given -- the nonlinear battlefield. That's not something new to us. The folks in XVIII Corps and Third Army, and the folks that have done the contingency operations historically, have always operated in a nonlinear environment. Their

training, their perception, is how they do things that are nonlinear. What we've got to do is apply that philosophy to the future in an "other-then-contingency" operation.

Question from Audience: Are we assuming that the enemies we will fight are nonlinear as well, in their structure?

Mr. Keller: In most cases. Because they are going through the same problems, particularly the Soviets, for example. They are not going to be able to line up as they have historically done or to use their echelon tactics that they've previously used because they just don't have the forces that are going to permit them to do that. There are some cases where we do face forces that are going to be linear. Of course that kind of depends on where you are. If you're down at the squad level, it all appears pretty damn linear. So it applies principally to the division and Corps levels where you're operating with the operational and strategic levels. But because of that nonlinearity, the basic concept that we're looking at for nonlinear operations presupposes that we start off in a dispersed condition. Where forces are dispersed, you mass them only when necessary to achieve the results you want to achieve; you attack over a very short period of time to redisperse and reconstitute your force for that cycle of operations. That's not a new cycle; it's had a lot of terms and there are still a lot of terms being used to say that, but in order to do that you've got to have these kinds of capabilities. You've got to have very good sensors. You've got to have longer-range things, both in terms of things that see and things that can kill. So, because of the nonlinearity, many of the implications of the future force designs drive us to some different considerations for both force design and for the technology that's going to support it.

Question from Audience: Define "mass force" now in the terms that we're talking about. I mean, we understand mass when we all got together and

Mr. Keller: "Mass" means you bring together the appropriate force needed to achieve whatever results you want at the appropriate place. It doesn't mean that you're going to get

Voice from Audience: . . . physically come together

Mr. Keller: . . . get everybody together and then attack. It may mean that you mass forces independently upon a single point. They may approach from different directions. It doesn't mean you have to get everybody together in an approach march formation and attack.

Voice from Audience: Bob, does that mean combat power though? Because that could be fires, it could be

Mr. Keller: Well, it assumes . . . I'll get to that. It may be that this mass could be achieved with other than ground maneuver organizations. You may do it with fires only, you may do it with aerial maneuver, so "mass" is "mass of combat power." Some of that is also the combat service support increment of combat power, because you've also got to bring that to bear.

Voice from Audience: Seems to be an "also" river. Why is, and I don't see it up there, speed of movement in those cases where you are going to move things, not aircraft but things on the ground . . .

Mr. Keller: The buzz phrase we use is "agility." You must enjoy an agility advantage over your opponent; that's not just speed, but it's the ability to overcome the terrain that you're fighting under, either through technology or through sizing and view. Because a lot of this has to do with sizing of the organizations, for example. We achieve agility through technology, but if we put a thousand fast things in a single organization, we've denied the organization agility, so we've got to keep the organization agile as well. Those are the kinds of things that we see that the concept requires. The concept is very dependent upon this. If you can't see the other fellow's movements, then you probably can't position yourself to mass in whatever form you want to achieve the results that you want. So very key to this concept is an exquisite (not my word, but General Wishart's word), an exquisite suite of detection systems that are going to give you the ability to see where the other fellow is, and also to see where he is not, which may be more important, because you've got a lot of space out there — you want to make sure that that's not his space, terrestrial space. A lot of space out there that you want to make sure is safe for your maneuver, that you want to make sure that he's not there.

The ability to target and fire, part of the mass. The fact that very early on we said that in this concept, "If possible and probable, we want to achieve the destruction of the enemy force through fires only." We are now, through the analysis that's been conducted to date, saying, "That's probably not achievable in most cases, that in all probability you're going to have to conduct maneuver against the force to complete the levels of destruction that we think are necessary." The point that you just made about the agility of the forces, you're got to be able to move very quickly around the battlefield in response to the perceived threat.

Question from Audience: Where does logistics come into this so that, you know, this is the part "go out, shoot, kill, find, maneuver," but how do you get resupplied and rearmed since you're mostly nonlinear all the time?

Mr. Keller: In the cycle that we talk about, this reconstitute phase down here (10), is really where we get the force back together and resupply it, sustain it. And during this cycle here, the force that doing the fighting is relatively independent of

sustainment, but that's a very short period of time, something on the order of 48 hours, so the force is out there conducting its operation for a relatively short period of time, then it is reconstituted by the logistics structure. That says, in force design, that you will find that we tend to separate the traditional relationships between the support and the combat structure. For example, you will no longer find maintenance organic to the maneuver battalions. That's heresy, in some people's minds.

Question from Audience: When you say "massed," do you really mean "massed" or do you really mean "massed fires"?

Mr. Keller: Yes. I mean "either/or," depending on the key conditions. If you can achieve the desired results by massing fires, then there's no requirement to mass ground forces against targets.

Voice from Audience: . . . nor to redisperse them. If you never mass the equipment, then you don't need to redisperse them, in that context.

Voice from Audience: Then you still have to move it, though.

Mr. Keller: In most cases, we find you cannot achieve the levels of destruction desired with fires to include aerial maneuver, so we're going to have to conduct some ground maneuver against the force to bring them down to levels that we . . .

Voice from Audience: Maybe that's a limitation we ought to focus on removing.

Mr. Keller: Yes. The problem comes in as you start decrementing the force, it begins to scatter and fractionalize on you, and your target array becomes not very productive. They tend to go to ground, the threat seems to go to ground, they're scattered out; it's just difficult to get to them with other than maneuver.

Voice from Audience: But it also implies good command and control in order to carry that off.

Mr. Keller: Yes. Good command control and excellent staff work. The degree of synchronization required by the commander and his staff to pull this off is going to, in my opinion, require an order of magnitude of intelligence that we're going to have to instill in our leadership over a relatively long period of time. It's a complicated process. We're talking about doing something in minutes and hours that current procedures say takes days. Our current deep fires TTP says it's going to take 24-48 hours plus, to conduct a deep operations — that's one. We're talking about conducting multitudes of those in hours, so we're going to have to change how we do things, we're going to have to change the ability of our staffs to gather the

information to do the coordination, to synchronize all these activities of diverse units around the battlefield, applying combat power on enemy forces that are also scattered and maneuvering.

Question from Audience: Doesn't it say that you've got to realize that they're going to be dispersed also? So massing may not be all coming together; it may be hitting where all of their targets are at the same time.

Mr. Keller: One of the first things our Threats guys discovered when we started playing this, the first war game, we were playing these tactics and Red was playing these current tactics. Well, we just kicked the snot out of them. And so, what happened very quickly was that the Threat guys said, "Well, the Soviets are going to react to this, and the way they'll react is the same way we're reacting." So then when the Threats folks started playing the same kind of tactics that we're talking about here, life got a little bit more interesting, because it's now the same kinds of tactics being applied by both sides, the same types of technologies being applied by both sides, and it becomes a more interesting battlefield than if you assume that he's arrayed very lock-step like he traditionally has been, and we're out here playing soccer and he's playing football.

Question from Audience: Does your force design include multiple staffs? Because if you're going to do this kind of stuff, you're going to need two or three battalion staffs running in sequence.

Mr. Keller: We would agree with you not at battalion level, but certainly at Corps or division level. Perhaps the brigade level, probably not battalion. You've got to make the divisions lighter, you've got to make them more agile. Corps is even more the centerpiece. This is not new news, this is what we say today. But Corps becomes even more the centerpiece because that's where the combat power is really orchestrated. We're talking about the functions of echelons as we traditionally have known them have changed over what they have been today, what they have been perceived to be.

What I want to show you is, very quickly, the conceptual base case that we are currently using for analysis. The reason I do this is I'm going to then show you the force structure that you're going to use for your analysis. Yes, sir.

Voices from Audience (Voice 1): Your suggestion of dispersed forces' fighting dispersed forces suggests that you're not going to have the opportunity to hit high value targets or high value weapons, which suggests that we're going to need a lot of . . . weapons and that we can . . . take our . . . in dispersed forces . . . **(Voice 2):** I don't think we've accepted your premise yet that we're not going to be able to claim high value targets. What we think we're got to do is be able to find the high value

targets. We've got to have sensor systems . . . (Voice 1): He's going to do everything he can to avoid giving you high value targets. (Voice 2): Understand that. Well, in terms of quantity maybe. But there are high value things in terms of . . . (Voice 1): Airfields and so on; I understand that. (Voice 3): Or command and control nodes . . . fires capabilities, that are still high value targets. The difficulty we're going to have is to be able to acquire and attack them. (Voice 1): I guess my point is today that we've built a lot of very high cost weapons, and maybe you can comment on this without going into too many . . . (Voice 4): Certainly, certainly, the cheaper the better. If I get the same capabilities, but I would think, given the choice of . . . (Voice 1): ATACMS versus MLRS that can do . . . (Voice 2): We want ATACMS. (Voice 1): I'll augment his question with another one in the same vein. When you talk of deep operations, do you mean bringing combat power to bear from remote locations or do you mean really attacking targets . . .

Mr. Keller: You want to be able to start attacking him either with BAI or with ATACMS at maximum ranges of those systems. For the Corps commander, we see the Corps commander orchestrating that battle out to about 200km in depth forward of the FLOT.

Voices from Audience (Voice 1): Why don't you let him bring up to the FLOT and then destroy them from a remote location? **(Voice 2):** We don't like body bags. If we can keep the maneuver from hitting head to head, if we can destroy him before that, we like it. **(Group Discussion)**

Mr. Keller: All of our analysis indicates that you want to acquire him and take him under fire at maximum depth, so you start the attrition on his force as far to the rear as possible, so that you halt his forces as far to the rear as possible. And the indications are that if you've got systems like ATACMS supported by a good intel system, particularly in a heavy environment, you can probably halt his force with nothing but the fire systems. You could bring those levels of attrition, but it takes the smart brilliant munitions and the extended ranges to do that, because it gives more time for you to work on the approach.

Voice from Audience: I guess my question is that we need the actual numbers. Do you want 10 expensive ATACMS going out there and 10 areas to attack, or do you want one ten times less expensive and still go 200 kilometers but not carry the same payload?

Mr. Keller: I think the characteristic we would probably opt for would be the accuracy. There is a certain degree of accuracy we would not surrender.

Voice from Audience: You're looking at space MLRS versus today's ATACMS, to given them all the same action.

Mr. Keller: We would still have to opt for the ATACMS. The additional range is necessary to make the concept work.

Voices from Audience (Voice 1): We would give you the same range. I'm saying the same range, 150-200 klicks, would you rather have 10 expensive weapons that will carry larger payloads, or would you rather have 100 less expensive ones that carry smaller payloads? Same range, same accuracy. **(Voice 2):** And I think the answer is that you're going to want the 10 expensive and the 100 less expensive, you want a high RT of systems to attack with so that you can mix according to what is out there in the force. But if you're saying 100 systems is going to take three times the manpower to operate than 10 systems that expense has got

Mr. Keller: I've got to haul those 100 bullets, I've got to maintain them until the war ends. When you say less expensive, you've got to put it into the context of a system.

Voices from Audience (Voice 1): Given an amount to spend on deep fire missiles, we've only got that much money. **(Voice 2):** That's the We're not just talking about the expensive missiles; we're talking about the expense of the organization that operates the missiles and that includes the organization that fires them, the organization that hauls them to the fire, and the organization that maintains them. **(Voice 3):** The 100 missiles don't have to fire from 100 different locations. I mean they fire from the same number of locations with the same batteries that attack, I'm talking about the attacking of dispersed targets at that distance versus attacking a handful of

Mr. Keller: Probably the best [answer] I can give you right now is that we want some of both. I don't think we would opt for either independent of the other.

Voice from Audience: The reason I'm asking the question is because a year or so ago, on a similar forum, a person in your position said, "Hey, let's junk MLRS and go totally to ATACMS." And looking out in the future at what technology is going to do to the smaller missiles to give them the accuracy and the range and so forth, I'm not sure that's a wise decision, looking at how he is going to fight his battle similar to the way we fight our battle.

Mr. Keller: I think a mix is still

Voice from Audience: Let's do some of the war gaming in the war game.

Mr. Keller: The building block for the force is no longer the division assist thing, it's the brigade (20). And this starts to look like a combined arms brigade in that the brigade commander owns, besides his own command control organizations, an organic air defense capability, and organic engineer capability principally oriented at mobility kinds of tasks, almost no countermobility; that's all at Corps level. This outfit here is an offensive oriented brigade. It's got three maneuver battalions; don't pay any attention to whether they're armor or mech, but about three maneuver organizations under him, a supporting artillery structure and a combat service support structure that . . . Now this is a dotted line here and there used to be a little file down here that says this association, here is much closer than direct support. I can't say it's organic yet, but it's getting awfully close. The relationships between this guy and this and this are becoming closer than they are today even. So once the battle is joined, at some state of task organization this becomes a fixed structure that the Corps commander uses to organize division basis. I'll show you that division base next (21). But that's the thing that maneuvers.

Voice from Audience: What's the number on there?

Mr. Keller: This number is about 1920, somewhere around 2000, still holding to 1920, and that does not include these two pieces here. That number will be a little later on. But something that the green suits in the room need to recognize is that there is no sustainment in these organizations here. No Class III, no Class V, no Class I — all that is here. So that says that these fellows here, it's all maneuver, do their thing, then after about 49 hours they've got to come home to papa and he sustains them. He gives them their restocks, refills them to a 48-hour capacity.

Voice from Audience: Is this a trend, are we going to see next a battalion-sized unit as the major maneuver . . .

Mr. Keller: I don't think so. The battalion is going the other way. Basically, what we've done is make the battalion simpler. It is a maneuver organization. This is an echelonment of concentration in the old terms, whereas this is the first self-sustaining echelon that we have. The battalion and the company are no longer self-sustaining. You will see the division is no longer self-sustaining either. So that battalions become a thing that can be task-oriented between brigades if necessary — not recommended. The brigades are task-organized the divisions.

Voice from Audience: Could I ask, on that last chart, how far down do you think it would be possible to drive that 1900 . . . with a very offensive policy on the injection of technology? I mean to push the technology as hard as you could.

Mr. Keller: This is based upon a 3-man tank crew and an 11-man infantry squad carrier.

Voice from Audience: Suppose you did autonomous tanks. I mean, you're talking about 30 years now; how far down could you drive that number?

Mr. Keller: I'd have to see the system. One of the problems I have in dialogue with you is you want to talk technology and I can't build an organization unless you show me an 8x10 glossy. So I can't answer that question until you tell me what the system is that I'm building, because I have to see a system. So I can't build a framistram battalion until somebody shows me an 8x10 glossy of a framistram, tells me how many crewmen are in it, and how many makes of people it takes. So it's difficult for me to answer the question. I don't know how I would do so. I can drive it down to however far the technology will allow me to, given that I want this brigade to fill at about the same combat potential that it has today. And I'm not sure I want to do that 30 years from now.

Voice from Audience: How many blanks are in here?

Mr. Keller: This is 44. Three company battalions, very small battalions — very agile. Today that outfit takes — how long to pass a given point? — looks like four hours. Activity trucks, 130-160 some-odd trucks in that battalion. This is a division, everything except this part right here is so-called division based, and that's what the division commander owns always, always. He may or may not own this because the Corps commander may give them and take them away depending on the METT-T divisions. This division base may be nothing but a planning headquarters and have no brigades attached to it today. Tomorrow it may have five brigade centers, depending on what the Corps commander wants to do. The division commander has got a small, light attack aerial recon battalion, a ground reconnaissance capability, military police for security and for circulation control, and the omnipresent band — can't get rid of that, guys; sorry.

Voices from Audience (Voice 1): . . . an autonomous band. That's ripe for automation and we can't even do it. **(Voice 2):** I could do that. **(Voice 3):** I could do that too; it's called cassettes.

Mr. Keller: Signal has basically been moved to Corps. All the area comms are Corps now because the Corps operates the area pipe grid system, and all this is, is the termination for this command control headquarters. He's got a fire support coordination element, and in peacetime commands those, fellas, but in wartime, it's the fire support coordinator and the DISCOM. This little company here, which is really probably going to be a small battalion, provides the CSS for this piece. Those and

those are married to those fellows there. So that's the division. Very . . . division structure. It's got those brigades operating for it.

Voice from Audience: What's the number on top of that one?

Mr. Keller: 12,500. Today's divisions are about 16,800 or 16,900 for a comparable organization. This has the same combat power today as one of today's organizations would, given today's technology.

Voice from Audience: What's the impact on the populating of this set of charts from both space developments and then the use of other services, like the Air Force's PACAIR? The spirit of my question is, are we assuming we've got to go out there on the battlefield and kind of fight, and stand and fight by ourselves, or do we count on and credit resources that flow down into it?

Mr. Keller: The reason we call it AirLand Battle is that we assume as part of this concept that this operates in a joint environment and we enjoy support from the sister services, particularly the Air Force.

Voices from Audience (Voice 1): Will we be able to get that data in our game? **(Voice 2):** It is the PACAIR's area and we have some other representatives from other services that will pass that information in the seminar rooms. **(Voice 1):** Well, for instance, if the strategy, as you pointed out, is the deep, you know, striking deep, quickly and getting their forces first and slowing them down and breaking them up, they'll do the same to us, so then you get into how sophisticated is our technology and surveillance. And in getting us information and then how fast we can move. **(Voice 3):** We'll discuss that in the war games; you'll have that information in the war games. **(Voice 1):** Well, I understand. I was trying to figure out, you know, we're showing charts up here and I'm wondering, you say it's been credited in the deal? We'll see it when we get there? OK.

Mr. Keller: OK, this is the Corps. Our notional Corps, they've got five divisions in it. This one's got one, two, three. Well, the Corps is smaller, more agile, more capable of independent operations. The Corps commander has at his direct disposal more combat power than he had before, relative to the force he's got. I mean more organic to the Corps as opposed to either the theater or division level. I don't think we need to get into these organizations here except your comments, of a fairly robust defense organization, for example, in consideration of that capability. In addition to the divisions that we just saw, two cavalry regiments. One of those is probably very much like we've perceived it today, a fairly heavy organization. The other one may not be so heavy. It may be lighter, more agile, more RSTA-oriented than economy-of-force oriented. A couple of separate brigades to allow the Corps commander to

mix and match these kinds of unique brigades with the brigades that are internal to these structures here to get whatever kinds of force he wants. A very large, robust artillery organization; I'll show you this in a little more detail in subsequent slides. It's a very large, robust air capability. Aerial maneuver, not fire support, but aerial maneuver, and the logistics structure. That's kind of the notional piece from which we did build specific structures, based upon whatever the METT-T conditions are that the commander is faced with.

Now, you've got copies of these charts in your packet, because these are the translation of the base case designs that I've been talking about into the METT-T kinds of conditions that were given for your war game, so these are not necessarily exactly like the base case I've been talking about. They've been tailored to fit the METT-T conditions that we've talked about. And also we've added some things down here at the bottom to allow you to investigate some technologies that we don't currently play in our base case because we've cut our technology off at about 2004, and some of these things here are technologies that are perhaps beyond that. Some of these things, like space operations, are probably not things that you'd expect to find in Corps. You would find those in some echelon above Corps, maybe even national level, but perhaps they would be at theater level. But this is to give you a capability to look at the impact of technology for ASAS, for exoskeletal type technologies applied to specific units, or a specialized unit in the force, to see how those might be used, what we can use for exceptions, and how we can look at alternative ways of aerial collection, RSTA, reconnaissance, those kinds of things.

These forces up in here are pretty much as I talked about them on the previous slide. You will examine alternative technologies up in here, as to different ways of providing the deep fires and you will look at different technologies to apply to the aerial maneuver response. So, providing a skeletal structure that you are going to consider these technologies for.

In this case, which is a forward deployed Corps, it looks pretty much like the one that we've got notionally, but then when you look at the patterns for contingency Corps, a much different organization. The premier purpose of this organization is to get into the war, so you find a lot of light things in it — light infantry divisions, airborne division, air assault capabilities, hopefully a lighter missile system. This is the organization here where you've got to somehow figure out how to help us in getting things smaller, lighter, because we've got to deploy. If you can't get this force to the war, you'd better not go, because the purpose of this force is to get there, develop your LOCs (lines of communication) so that you can bring in the force that you really hope is going to win the battle for you. In most cases, in the contingency scenario you're playing, you're going to have to get this kind of force there in order to complete the force. That's an assumption on my part, now.

Voice from Audience: It sure is.

Mr. Keller: It may not be necessarily so, given future technology, but historically that's been the case, but certainly one of the things that we hope to get out of your deliberations will be proof one way or the other of what I've just said.

Voice from Audience: We're not compromising the killing power of the light forces?

Mr. Keller: Hopefully not. Any questions?

End of Tape.

Tailorable Corps Briefing Slides



FORCE DESIGN
BUREAU



FORCE DESIGN BUREAU



INTEGRATING FORCE DESIGN AND MODERNIZATION

- DEVELOPING CREATIVE CONCEPTS
- EXAMINING TYPES OF SYSTEMS AND TECHNOLOGIES
- DEVELOPING ALTERNATIVE FORCE DESIGNS
- SPONSORING AND MANAGING ANALYSES

TO CREATE THE MOST COMBAT
EFFECTIVE, DOCTRINALLY SOUND FORCE
WITHIN RESOURCE CONSTRAINTS



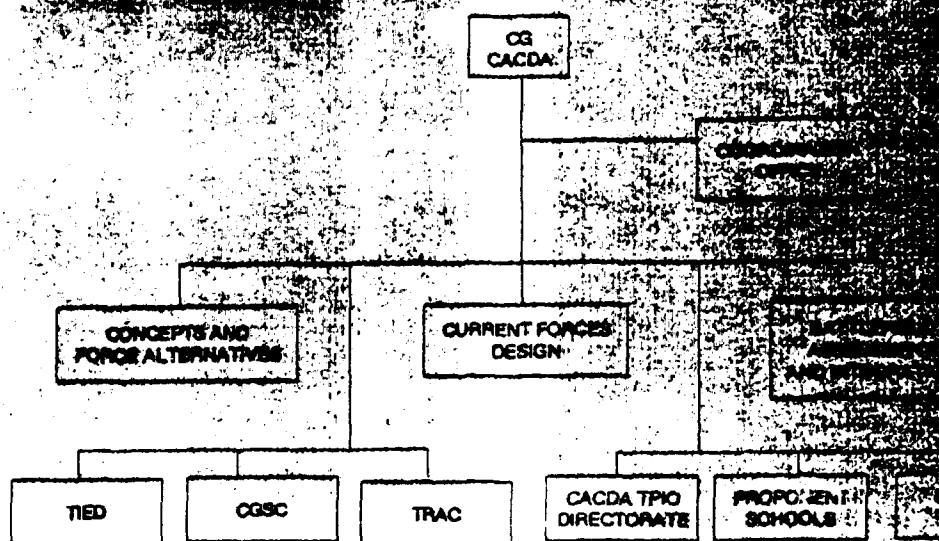
FORCE DESIGN BUREAU



- CONCEPTS.
- UNIT DESIGNS (URS, TOB)
- DOCTRINAL FORCE STRUCTURE
- MODERNIZATION STRATEGIES
- MATERIEL PRIORITIES
- ANALYSIS AND EVALUATION



FORCE DESIGN BUREAU

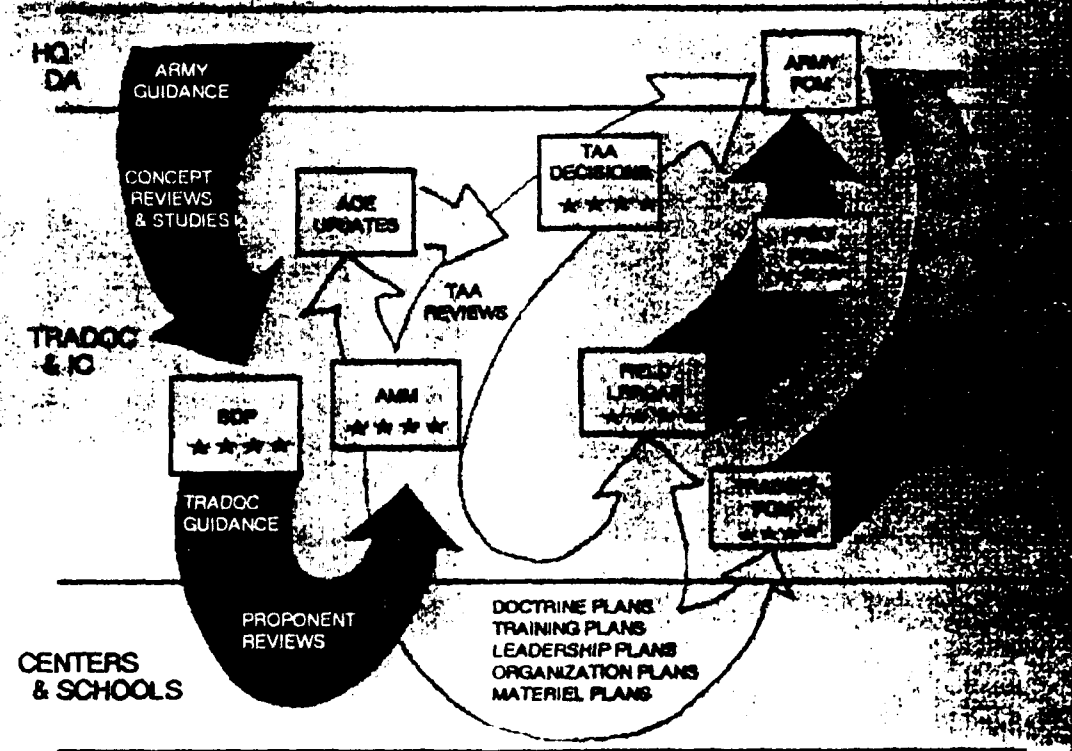




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INNOVATION



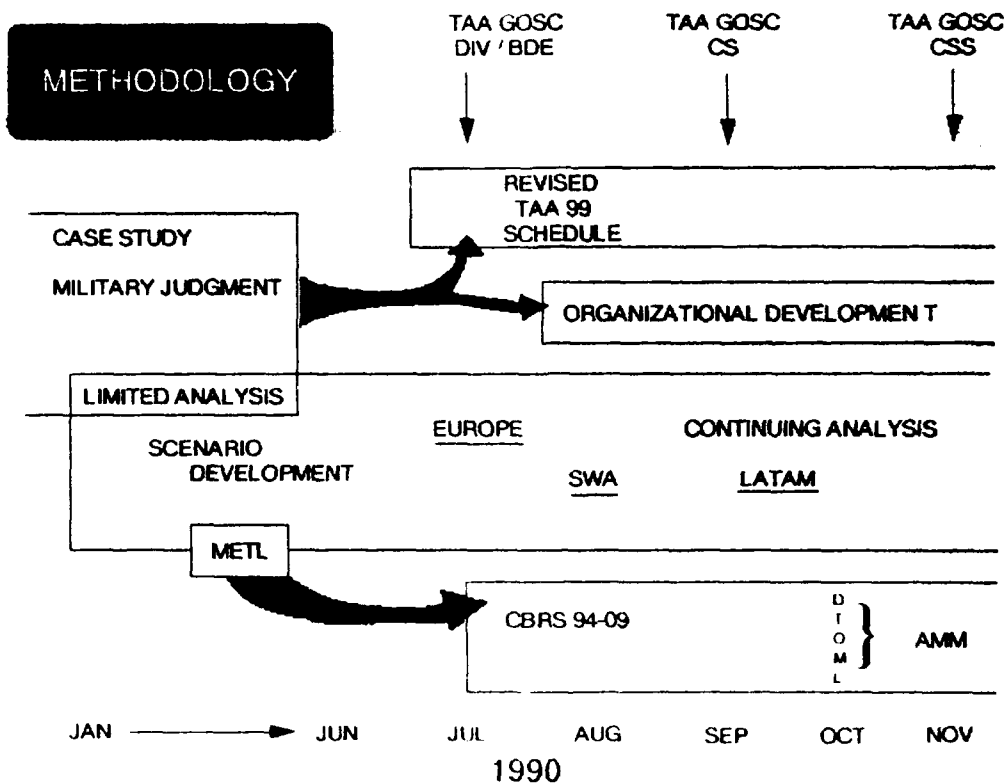
AIRLAND BATTLE - FUTURE

WE HAVE TWO BROAD OBJECTIVES:

WE NEED TO BE CERTAIN OF THE OPERATIONAL
CONCEPT FIRST.
THEN WE CAN ITERATE THE FORCE DESIGNS.



FORCE DESIGN BUREAU

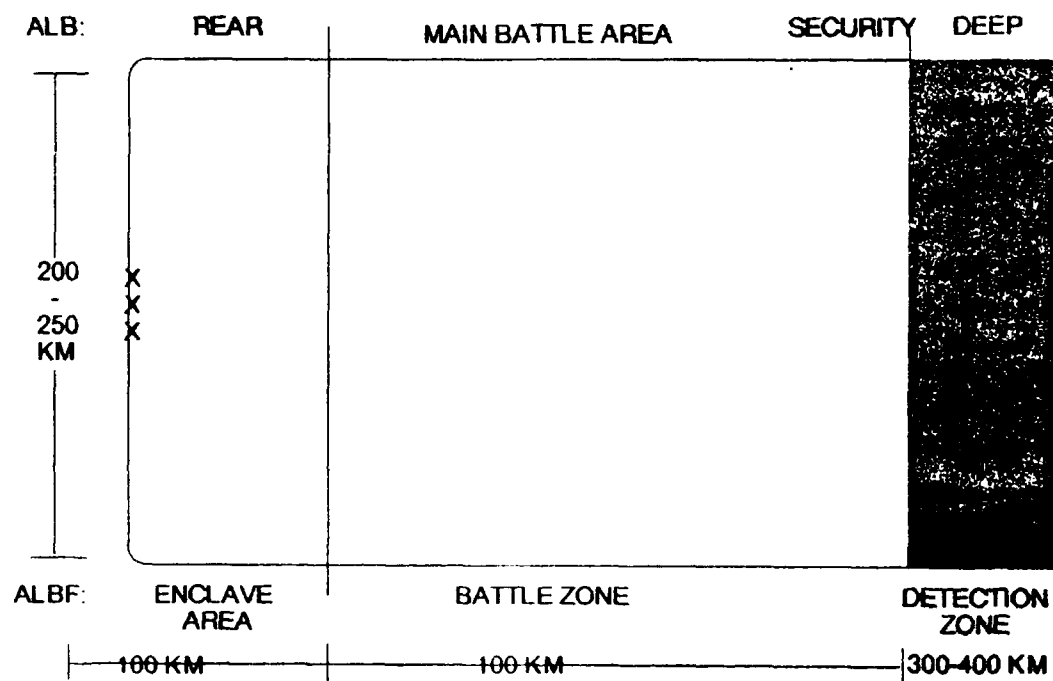




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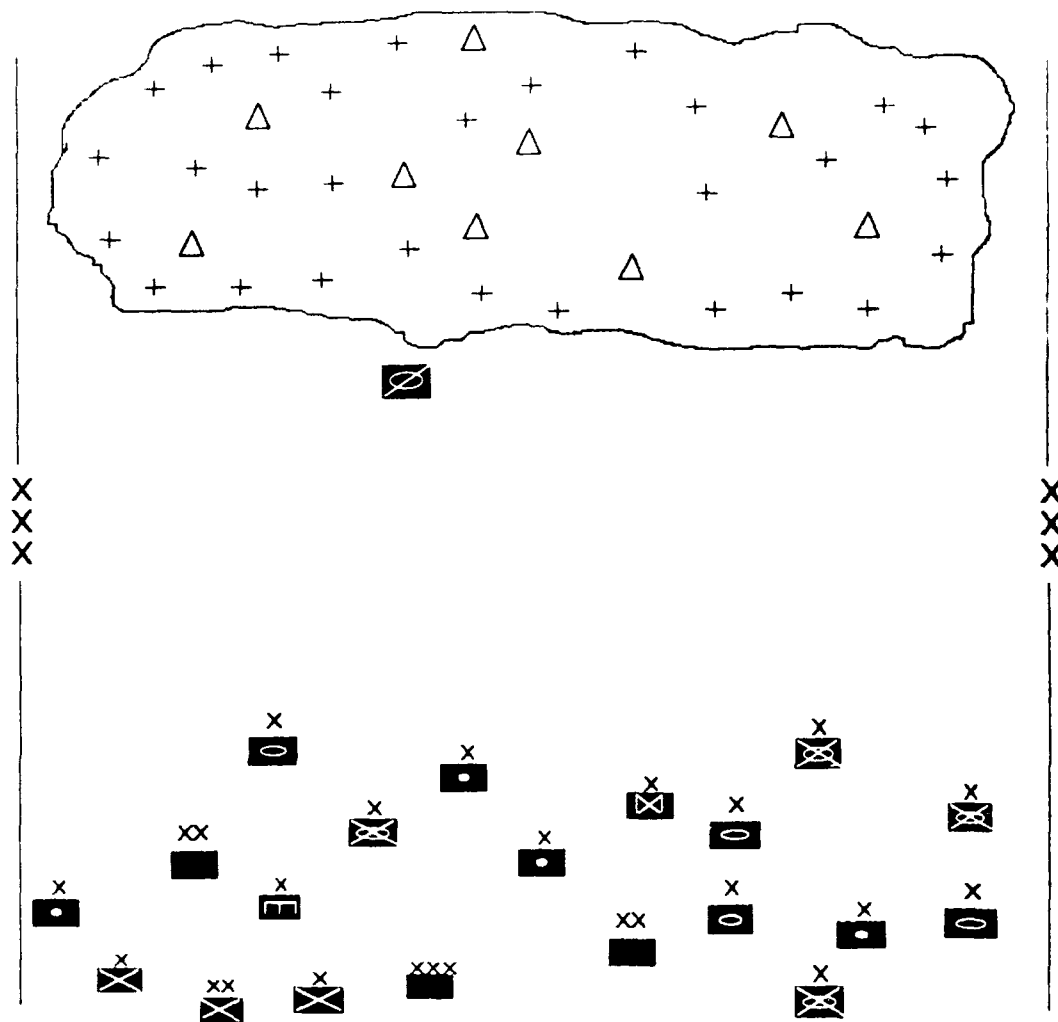


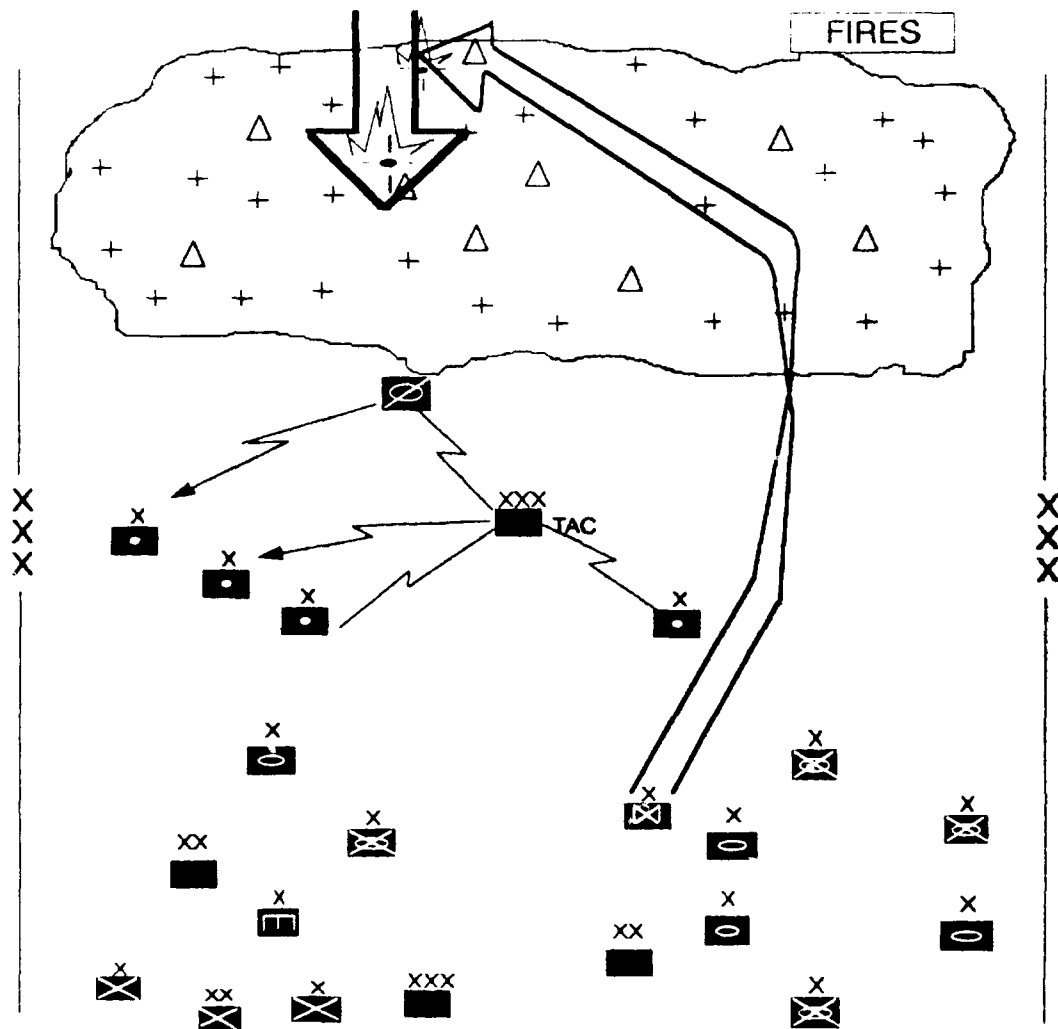
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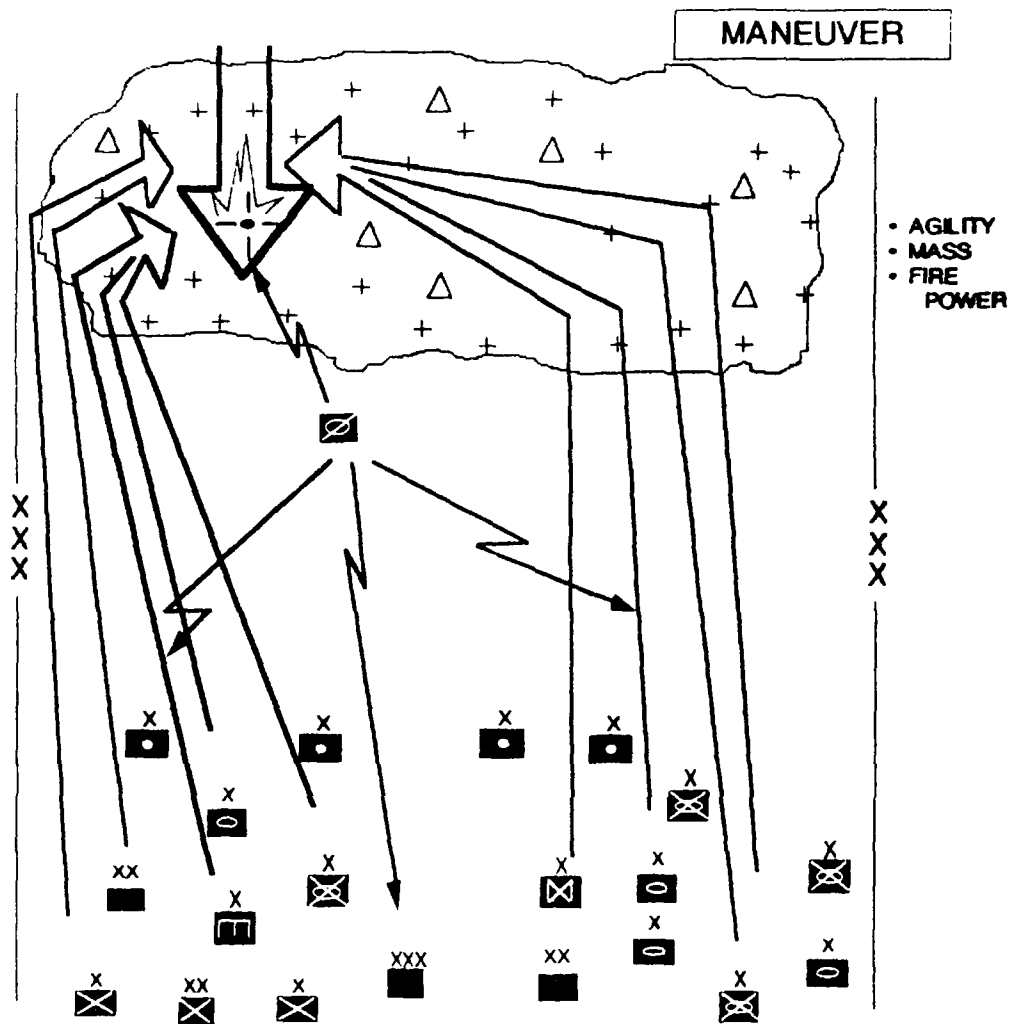


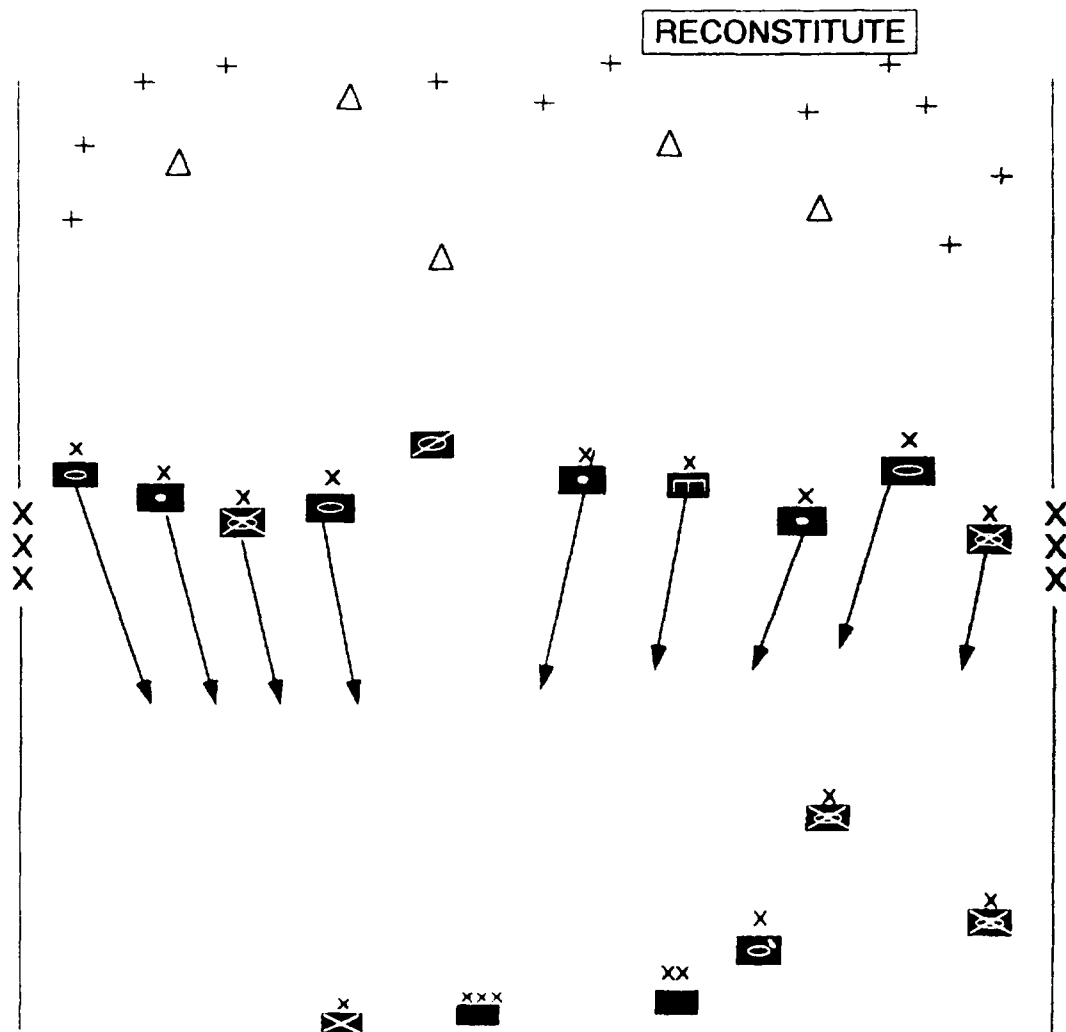
**FORCE DESIGN
BUREAU****PHASING****DETECT****MANEUVER****RECONST**

H H+5 H+10 H+15 H+20 H+25 H+30 H+35 H+40









CORPS OPERATIONAL CONCEPTS

- OPERATE OVER GREATER DEPTH & BREADTH
- DETECT, TRACK, IDENTIFY, & LOCATE ENEMY EARLY WITH MINIMUM FORCES.
- RECONNAISSANCE AND SURVEILLANCE MAINTAINS CONTACT, DETERMINES STRENGTH, SHAPES BATTLE, AND DIRECTS LONG RANGE FIRES.
- LONG RANGE FIRES ENGAGE, DELAY, CONFUSE AND DESTROY ENEMY.
- MANEUVER FORCES TAILORED TO MISSION, MOVE RAPIDLY, COMPLETE DESTRUCTION OF ENEMY.
- COMPLETE OPERATION AND PREPARE FOR NEXT BATTLE
 - READJUST RECON / SURVEILLANCE
 - READJUST C3
 - RESUPPLY, REORGANIZE, RECONSTITUTE

COMBINED ARMS CENTER



CORPS ORGANIZATIONAL CONCEPTS

- SMALLER BATTALIONS ORGANIZED AROUND SINGLE SYSTEMS
- COMBINED ARMS BRIGADES
- TACTICAL DIVISION HEADQUARTERS
- LOG SUPPORT IS A PUSH SYSTEM: CORPS TO BN / CO
- THE CRITICAL FIGHTING COMMANDERS ARE AT BATTALION / COMPANY AND DIVISION
- CORPS AND BRIGADE COMMANDERS SUPPORT THE FIGHT AND INTERATE SYSTEMS
- INTELLIGENCE AND SURVEILLANCE FOCUSED AT CORPS
- DEEP BATTLE IS CORPS FIGHT (RETAINS LONG RANGE FIRES AND TARGET ACQUISITION)
 - BELOW CORPS, ARTILLERY IS USED PRIMARILY IN DS
- REQUIREMENT FOR INCREASED RECON / CAVALRY CAPABILITY AT CORPS
- C3 MUST SUPPORT A MOBILE BATTLE

COMBINED ARMS CENTER



AIRLAND BATTLE - FUTURE

CORPS OPERATIONAL CONCEPTS

- OPERATE OVER GREATER DEPTH & BREADTH
- DETECT, TRACK, IDENTIFY, & LOCATE ENEMY EARLY WITH MINIMUM FORCES.
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AIRLAND BATTLE - FUTURE

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SMALLER BATTALIONS ORGANIZED AROUND SINGLE SYSTEMS

COMBINED ARMS BRIGADES

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LOG SUPPORT IS A PUSH SYSTEM: CORPS TO BN / CO

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CORPS AND BRIGADE COMMANDERS SUPPORT THE FIGHT AND INTEGRATE SYSTEMS

INTELLIGENCE AND SURVEILLANCE FOCUSED AT CORPS

DEEP BATTLE IS CORPS FIGHT (RETAINS LONG RANGE FIRES AND TARGET ACQUISITION)

BELOW CORPS, ARTILLERY IS USED PRIMARILY IN DS

REQUIREMENT FOR INCREASED RECON / CAVALRY CAPABILITY AT CORPS

C3 MUST SUPPORT A MOBILE BATTLE

CORPS ORGANIZATIONAL CONCEPTS

- SIMPLIFY COMMAND AND LEADERSHIP AT LOWER ECHELONS
 - INCREASE LEADER TO LED RATIO
 - ORGANIZE AROUND SINGLE SYSTEMS
- CREATE A TACTICAL ECHELON
 - CAPABLE OF RAPID FORCE TAILORING
 - CAPABLE OF COORDINATING ALL BOS
- SYSTEMS NOT REQUIRED ALL THE TIME RETAINED AT HIGHER LEVELS
- SUPPORT HIGHER TO LOWER / FRONT TO REAR
 - DELIVER WHERE NEEDED
 - PROVIDE TO FIGHTING COMMANDER
- FIGHTING COMMANDERS CONTROL THE FIGHT

WHICH TRANSLATES TO . . .



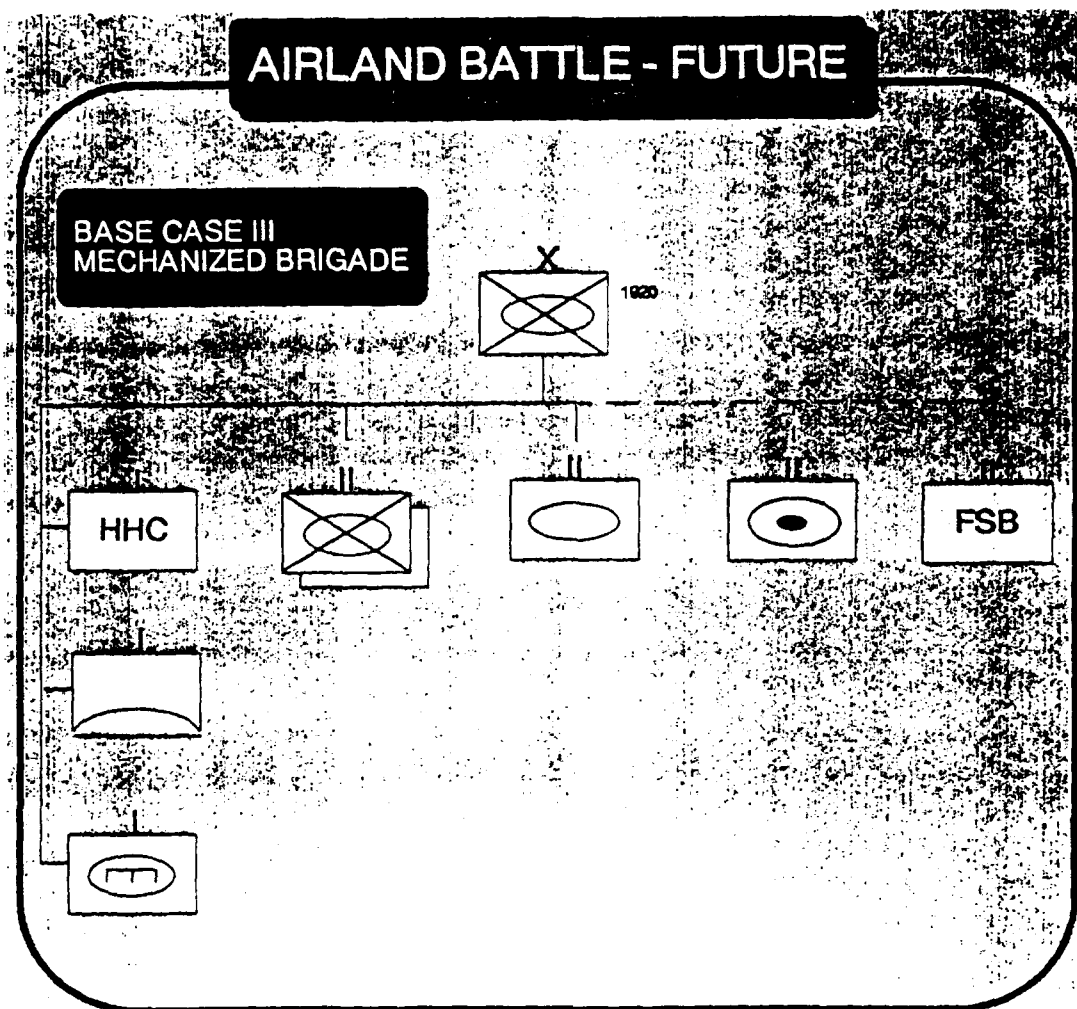
COMBINED ARMS CENTER

FORCE IMPLICATIONS

- CORPS ARE TAILORED
- BRIGADES ARE BUILDING BLOCKS
- MORE AGILE, MOBILE FORCES
- MORE VERSATILE, AGILE COMMAND ELEMENTS
- ROBUST SURVEILLANCE / TARGET ACQUISITION / FUSION
- FLEXIBLE, LONG RANGE COMMUNICATIONS
- INCREASED FIRES, SECURITY FORCES
- HIGH SURGE, SURVIVABLE LOGISTICS SYSTEMS



COMBINED ARMS CENTER

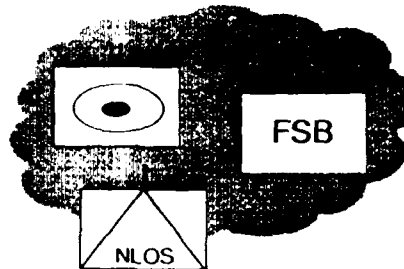
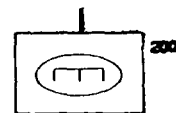
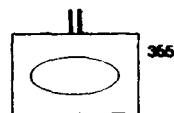
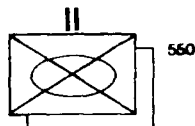
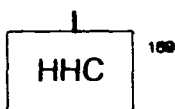
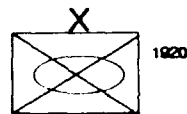




BASE CASE III MECHANIZED BRIGADE



44 TANKS
179 ARMORED CBT VEH
12 MORTARS



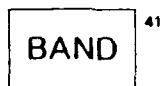
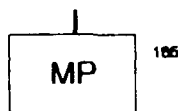
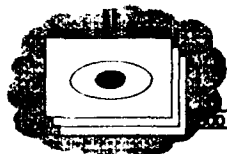
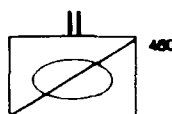
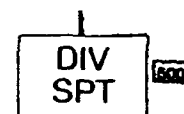
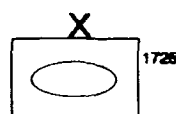
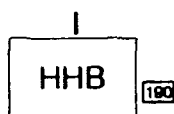
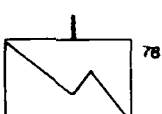
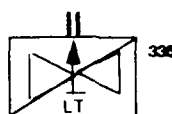
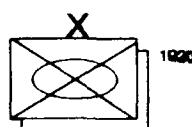
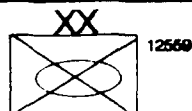
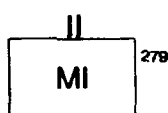
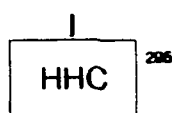
NOTE-THESE UNITS HAVE A CLOSER RELATIONSHIP TO THE
MANEUVER BDES THAN DS, BUT ARE NOT ORGANIC



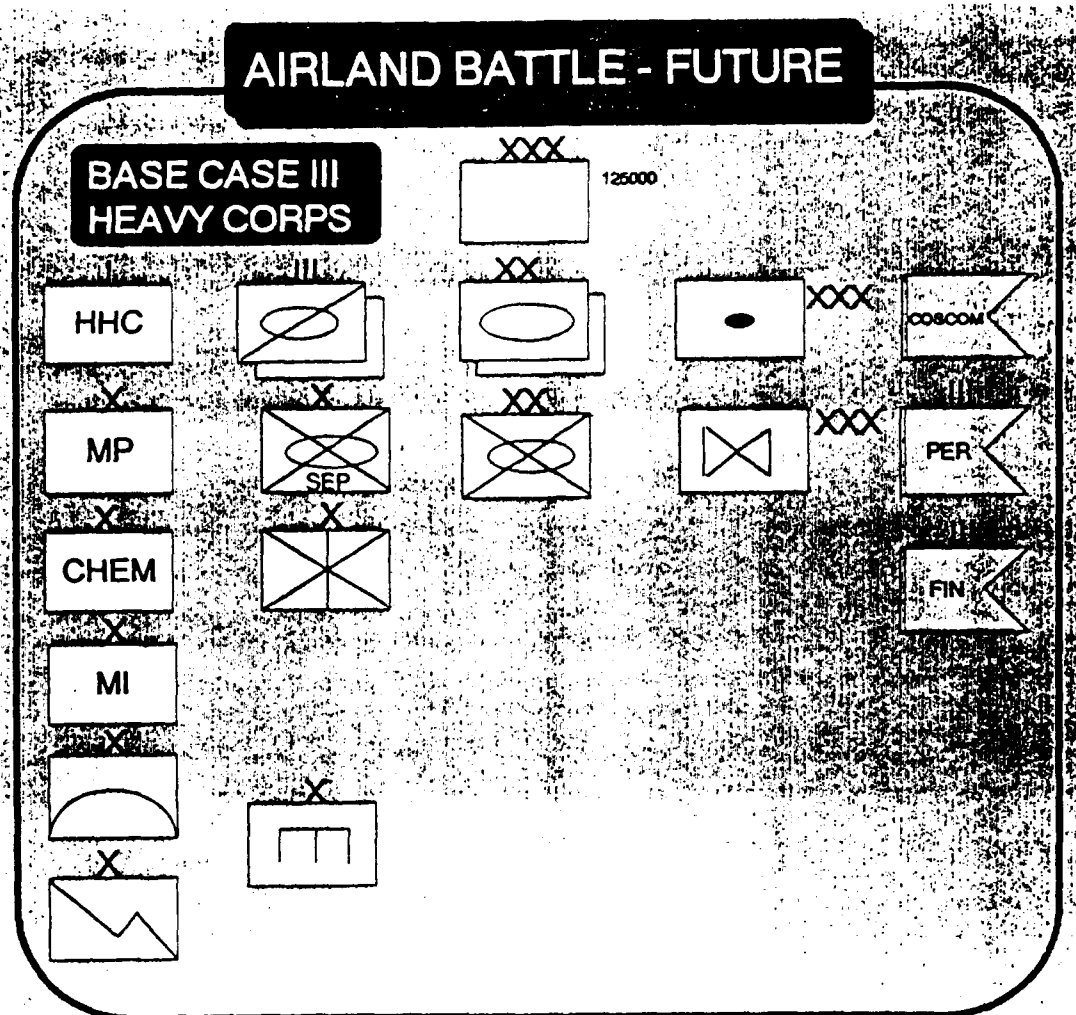
BASE CASE III BRIGADE BASED MECHANIZED DIVISION



203 TANKS
657 ARMORED CBT VEH
117 ARTILLERY / MORTAR TUBES



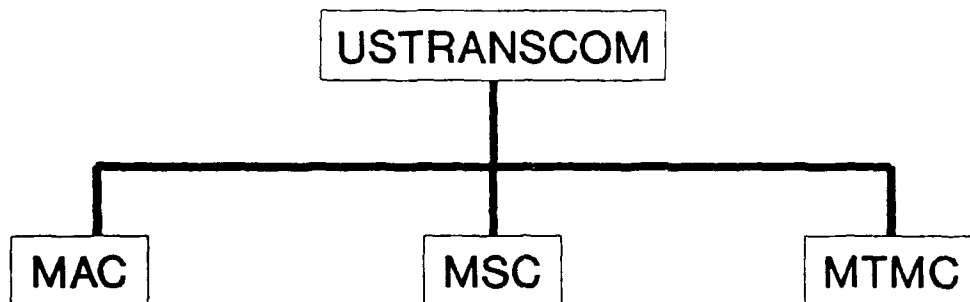
NOTE-THese UNITS HAVE A CLOSER RELATIONSHIP TO THE
MANEUVER BDES THAN DS, BUT ARE NOT ORGANIC



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APPENDIX N:
STRATEGIC DEPLOYMENT

STRATEGIC DEPLOYMENT PLAYERS



- RESPONSIBILITIES (AIR, SEA, LAND, TERMINAL OPERATIONS)
- 143rd TRANSCOM OPERATES SWA TERMINAL
- SWA DEPLOYMENT IS WORST CASE
 - UNDEVELOPED THEATER (INCREASED LOGISTICAL REQUIREMENTS)
 - DISTANCE (3 DAY TURNAROUND FOR ACFT SORTIES)
- STRATEGIC LIFT (AIR, SEA, PREPOSITIONING ON LAND AND SEA)

STRATEGIC AIRLIFT ASSETS

MAC AIRCRAFT

ACFT TYPE	#AVAIL	PALLET POSITIONS
C-141	180	13
C-17	180	18
C-5	110	33



CIVIL RESERVE AIRFLEET

- I. 17 PAX (12.47 MILLION PAX MILES/DAY)
21 CGO (2.87 MILLION CGO MILES/DAY)
- II. 75 PAX (48.69)
38 CGO (4.78)
- III. 242 PAX (147.08)
138 CGO (17.25)

POE  POD

FA BTRY (MLRS)

SRC 06398L000

Movement Option	Aircraft Type			
	C-17	C-141	C-141	C-5
Air 	1	33	OR	
Sea 	SHIP MIX 1	SHIP MIX 2	SHIP MIX 3	SHIP MIX 4
	USNS ALGOL 10%/139,911		CA-S-65A 27%/7,498	

ARM14

Comments: All 130 troops from this unit can fly on available aircraft.

MSC FORCE INVENTORY (1 FEB 90)

ACTIVE (66)

-COMMON USER

11 DRY CARGO

24 TANKER

-AFLOAT PREPOSITIONING FORCE

13 PREPO SHIPS

13 MARITIME PREPOSITIONING SHIPS

-FAST SEALIFT SHIPS

5 SHIPS

PREPOSITIONED SHIPPING

AFLOAT PREPOSITIONING FORCE (APF)

```
graph TD; APF[AFLOAT PREPOSITIONING FORCE (APF)] --> PS[PREPOSITIONING SHIPS]; APF --> MPS[MARITIME PREPOSITIONING SHIPPING];
```

PREPOSITIONING SHIPS

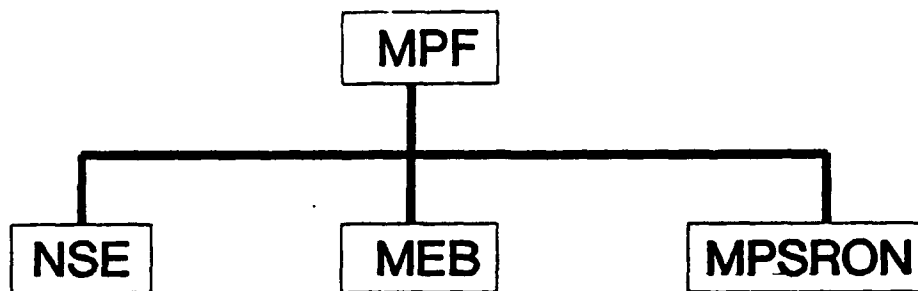
- 25K PER DAY PER SHIP
- IN DIEGO GARCIA
 - 3 ARMY LASH SHIPS
 - 1 USAF LASH SHIP
 - 4 POL TANKERS

MARITIME PREPOSITIONING SHIPPING

- 65K PER DAY PER SHIP
- 3 MPSRONs
- MPSRON 2 (5 SHIPS IN DIEGO GARCIA)

- TEMP/HUMIDITY CONTROLLED
- SELF SUSTAINING
- EXERCISE FREQUENTLY

MARITIME PREPOSITIONING FORCE



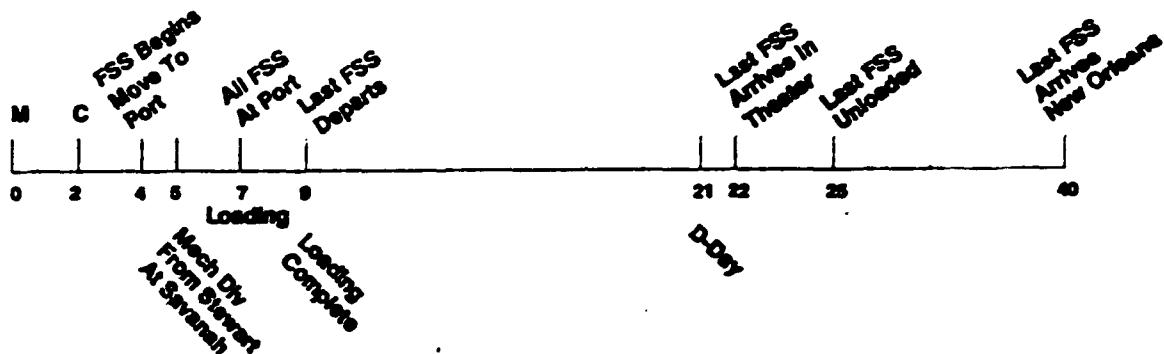
-USAF FLIES IN 16,500 PAX

-SECURE PORT REQUIRED

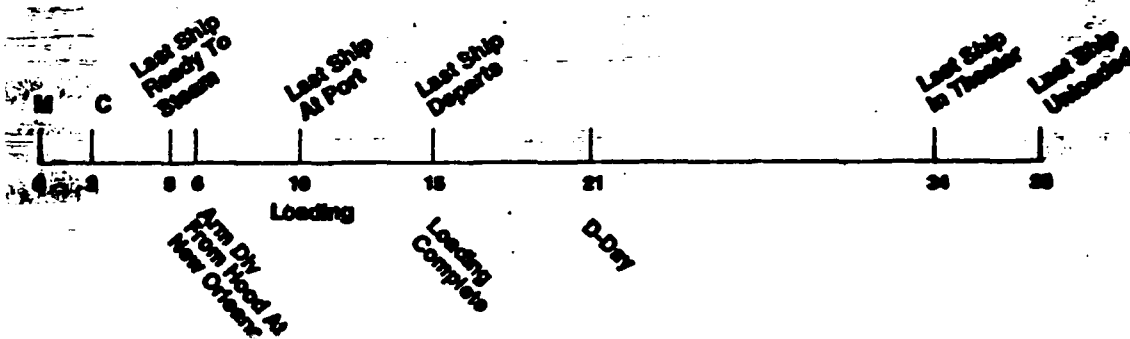
-READY TO FIGHT 5 DAYS AFTER ARRIVAL

DEPLOYABILITY TIMELINE: SEA

Mechanized Division

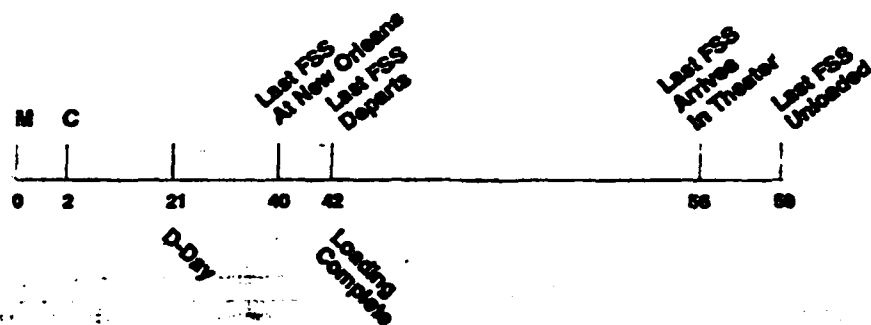


Armored Division One



DEPLOYABILITY TIMELINE: SEA

Armored Division Two



CHALLENGES TO SEALIFT PLANNING

- **TECHNICAL DEPLOYABILITY DATA FOR 2004 FORCE STRUCTURE:**
 - UNKNOWN
 - COSTLY TO BUILT FOR SEACOP ANALYSIS
- **HIGH PROBABILITY OF INACCURACY IF KNOWN (GHOST CARGO)**
- **SHIPPING AVAILABLE IN 2004 DEPENDS ON**
 - TREATIES
 - OTHER THEATERS
 - STATE OF MARITIME INDUSTRY
 - FEWER SHIPS
 - LARGER SHIPS

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**APPENDIX O:
PHASE 2 LATAM BRIEFOUT**



**Briefer: Dr. John Frasier
Ballistic Research Laboratory**

LATAM MISSIONS

1. PLATOON MOVEMENT TO CONTACT IN JUNGLE

- **EXAMINE SOLDIER SUPPORT SYSTEMS**
- **IDENTIFY SUITE OF SOLDIER SUPPORT EQUIPMENT**

2. SOF TEAM SURVEILLANCE ASSIGNMENT IN MOUNTAINS

- **EXAMINE INSERTION TECHNOLOGIES**
- **IDENTIFY LIGHT WEIGHT DISABLING CAPABILITIES**

3. COUNTER MANYO BRIGADE THRUST ON BOGA CAPITAL

- **EXAMINE EFFECTIVENESS OF MOBILITY SYSTEMS**
- **DISCUSS LETHAL ANTIARMOR SYSTEMS**

LATAM REGIONAL INSIGHTS

- **WON'T KNOW WHERE ENEMY IS**
- **SOLDIERS NEEDED FOR RECON/INTELLIGENCE**
- **MANEUVER SPACE LIMITED AND SPEED SLOW**
- **DIFFICULT TERRAIN**
 - **MAY NOT LEND ITSELF TO LARGE UNIT HIGH TECH SOLUTIONS**
 - **WILL REQUIRE WELL EQUIPPED/ TRAINED SOLDIERS FOR BRIEF ENCOUNTER ACTIONS**
- **ITS HARD TO "SEE" IN THE JUNGLE**
- **THEY HAVE ACCESS TO GOOD TECHNOLOGY**
 - **DECOYS**
 - **MINES**
 - **INDIVIDUAL WEAPONS**
- **SUCCESS DEPENDS CRITICALLY ON INDIVIDUAL SOLDIER ENHANCEMENT TECHNOLOGIES**
- **TRAINING/SIMULATION A BENEFIT FOR SOF OPERATIONS**

MOST IMPORTANT SYSTEMS

SENSORS

- **STRATEGIC**
- **TACTICAL**
- **PERSONAL**

INFORMATION FUSION / DISTRIBUTION

- **STRATEGIC**
- **TACTICAL**
- **PERSONAL**

FUTURE SOLDIER SYSTEM

- **SOLDIER'S COMPUTER**
- **SENSOR / COMMUNICATIONS SYSTEM**
 - **TAC INFO DISPLAY**
 - **NAV DISPLAY**
 - **COMMO**
 - **RANGE FINDER**
 - **POS\NAV**
 - **MEDICAL MONITORING**
- **PHYSIOLOGICAL PREPARATION**
 - **IMMUNIZATION (BUGS, GAS, ETC)**
 - **NUTRITION (TAILOR RATIONS)**
 - **SLEEP ENHANCERS**
 - **HYDRATION**

MOST IMPORTANT SYSTEMS (CONT)

FUTURE SOLDIER SYSTEM (CONT)

- **SENSORY ENHANCEMENT**
- **STEALTHY CLOTHING**
- **BALLISTIC CLOTHING**

COMPACT POWER SUPPLIES

VOICE-TO-VOICE TRANSLATOR

LIGHTEN THE LOAD

MINES:

- **SMART, NETWORKED ANTI-AIR MINES**
- **SMART, NETWORKED ANTI-VEHICLE MINES**

ANTI-TANK HELICOPTER MUNITIONS

LONG-RANGE MISSILES VS. C2 NODES

ISSUES FOR FUTURE ANALYSIS

- COMMO IN MULTIPLE CANOPY VEGETATION
- EXOSKELETON UTILITY
 - LOAD CARRYING?
 - SPEED?
 - STEALTH?
 - DISTRIBUTION?
 - MOBILITY?
 - ENERGY EFFICIENCY?
 - POWER SOURCES?
- DEPLOYMENT
- SUPPORT/SUSTAINMENT
- IFF
- JUNGLE MOBILITY
- MINE AND SENSOR DETECTION

**APPENDIX P:
PHASE 2 EUROPE BRIEFOUT**



**Briefer: Mr. Jerry Reed
Harry Diamond Laboratories**

EUROPE MISSIONS

- 1. DEFEAT ATTACKING ENEMY RECON BDE**
 - o EXAMINE EFFECTIVENESS OF SENSORS**
 - o DISCUSS TECHNICAL SOLUTIONS FOR DETECTION/TARGETING AND MOUT**
- 2. RECONSTITUTE U.S. MECH BDE**
 - o REDUCE CSS REQUIREMENTS**
 - o IDENTIFY CSS REQUIREMENTS OF HIGH-TECH SYSTEMS**
- 3. DESTROY COMMAND AND CONTROL**
 - o EXAMINE LOCATION CAPABILITIES**
 - o EXAMINE C3 DESTRUCTION SYSTEMS**
- 4. ATTACK ENEMY MECH BDE ON THE MOVE**
 - o ACHIEVE MOBILITY ADVANTAGE OVER THE ENEMY**
 - o IDENTIFY MOST LETHAL SYSTEMS**

AIRLAND BATTLE FUTURE -- ISSUE/IMPACTS

- **DEPENDENCY ON SATELLITES AND SENSORS (COMMO/INTEL)**
 - **DEGRADATION/DESTRUCTION**
 - **EXPLOITATION**
- **DECEPTION CAPABILITIES AND OPS (COUNTERDECEPTION)**
 - **SPOOFING MULTIPLE SENSORS**
 - **PROJECTING MULTI-SPECTRUM SIGNATURES**
 - **MISINFORMATION**
- **EMPHASIS ON STRONG COMMAND CONCEPTS VS CONTROL**
 - **LEADERS/STAFFS TRAINED TO USE INITIATIVE WITHIN THE COMMANDER'S INTENT**
- **DEVELOP INDIVIDUAL SOLDIER AS A SYSTEM**
 - **BUILT-IN SURVIVABILITY (PROTECTION)**
 - **ANTI-ARMOR CAPABILITY**
 - **DAY/NIGHT ALL WEATHER CAPABILITY**
- **SOFT KILL ANTI-MATERIEL WEAPONS**
- **LOGISTICS - REDUCTION IN WEIGHT REQUIREMENTS/QUICKER**

II. MOST IMPORTANT SYSTEMS

- SATELLITE TECHNOLOGY (1990-2015 CONTINUE UPGRADE)
 - SENSORS (ALL WEATHER) - RF (1' SAR, MTI)
 - COUNTERMEASURES/HARDENING
 - POS/NAV
- DECEPTION SYSTEMS
- SOLDIER SYSTEMS
 - TRAINING
 - EXOSKELETAL TECHNOLOGY (TOTAL SYSTEM) - 1998
 - ANTI-TANK WEAPON - 1998-2000
 - ROBOTIC MULE (INDIVIDUAL SUPPORT)
 - STANDOFF TGT MARKING
 - HUMAN FACTORS - PHYSIOLOGICAL SUPPORT-
CONNECTED TO TECHNOLOGY
 - IFF

II. MOST IMPORTANT SYSTEMS (CONT)

- LT/WT (30 TON) - FAST TANK
MISSILES + GUN/LOW OBSERVABLE
- CHEMICAL PROTECTION
- LONG RANGE ARTILLERY
(COUNTER BATTERY + MISSILES)
- SMART MINES
- LOGISTICAL SUPPORT
 - VTOL REARM/RESUPPLY
 - ROBOTIC AIDED SYSTEMS

IV. ISSUES FOR FURTHER ANALYSIS

- o EXPANDED TECHNOLOGY OPTIONS FOR HIGH POWER MICROWAVE/ET GUNS/ELECTRIC DRIVE**
- o HIGH ENERGY/HIGH POWER SOURCES**
- o ALTERNATE FUEL TECHNOLOGY**
- o SPACE BASED K.E. SYSTEM**
- o SOFTWARE "MEDICAL R & D"**
- o DISTRIBUTION OF COMMAND & CONTROL
CENTRALIZATION VS DECENTRALIZATION**

**APPENDIX Q:
SWA PHASE 2 BRIEFOUT**



Briefer: Dr. Clarence Thornton
Electronics Technology and Devices Laboratory

SWA Mission

SWA

- **Conduct Strategic Deployment**
- **Destroy Enemy Long Range Fire Units**
- **Attack Enemy Mech Brigade Defending Oil Fields**

Regional Insights

SWA

- **Deployment**
- **100% Locate / ID and Target**
- **Access to National Satellites**
- **Satellite Replacement**
- **Real-Time Processing**
- **Dispersion of Targets**
- **MOUT**
- **Training Implications**

Systems

SWA

- **National Asset Satellites - Cheap Sats**
- **Ultra High Speed Symbolic/Data/Signal Processors**
- **SOF / HUMINT INTELL Support System**
- **Rapid Launch, Low Cost, Smart, Long Range Missile**
- **Incapacitating Agents**
- **Anti Toxins**
- **Tunable Spectral Smoke / IR Goggles**
- **Multipurpose Soft / Hard Kill Munitions**
- **Mass Aerial Insertion System**
- **Future Soldier System (Multipurpose Weapon)**